

**PATENT**

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Application of:  
Guy Cloutier *et al.*

Serial No.: 10/579,381

Filed: May 13, 2006

For: COMBINED POSITIVE AND NEGATIVE  
PRESSURE AGAINST ASSIST  
VENTILATION

Group Art Unit: 3737

Examiner: Unknown

Atty. Dkt. No.: BRKP:022US

Confirmation No.: 8232

**CERTIFICATE OF ELECTRONIC TRANSMISSION**  
37 C.F.R. § 1.8

I hereby certify that this correspondence is being  
electronically filed with the United States Patent and  
Trademark Office via EFS-Web on the date below:

February 8, 2007

Date

David D. Bahler

**INFORMATION DISCLOSURE STATEMENT**

**MS AMENDMENT**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, Virginia 22313-1450

Sir:

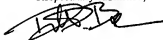
In compliance with the duty of disclosure under 37 C.F.R. § 1.56, it is respectfully requested that this Information Disclosure Statement be entered and the documents listed on attached Form PTO-1449 be considered by the Examiner and made of record. Copies of the listed documents required by 37 C.F.R. § 1.98(a)(2) are enclosed for the convenience of the Examiner.

In accordance with 37 C.F.R. §§ 1.97(g), (h), this Information Disclosure Statement is not to be construed as a representation that a search has been made, and is not to be construed to be an admission that the information cited is, or is considered to be, material to patentability as defined in 37 C.F.R. § 1.56(b).

The present Information Disclosure Statement is being filed prior to the receipt of a first Official Action reflecting an examination on the merits, and hence is believed to be timely filed in accordance with 37 C.F.R. § 1.97(b). No fees are believed to be due in connection with the filing of this Information Disclosure Statement, however, should any fees under 37 C.F.R. §§ 1.16 to 1.21 be deemed necessary for any reason relating to these materials, the Commissioner is authorized to deduct the appropriate fees from Fulbright & Jaworski Deposit Account No.: 50-1212/BRKP:022US.

Applicants respectfully request that the listed documents be made of record in the present case.

Respectfully submitted,



David D. Bahler  
Reg. No. 30,932  
Attorney for Applicants

FULBRIGHT & JAWORSKI L.L.P.  
600 Congress Avenue, Suite 2400  
Austin, Texas 78701  
(512) 474-5201

Date: February 8, 2007

Form PTO-1449 (modified)		Atty. Docket No. BRKP:022US	Serial No. 10/579,381
List of Patents and Publications for Applicant's INFORMATION DISCLOSURE STATEMENT		Applicant Guy Cloutier <i>et al.</i>	
(Use several sheets if necessary)		Filing Date: May 13, 2006	Group: 3737
U.S. Patent Documents <i>See Page 1</i>	Foreign Patent Documents <i>See Page 1</i>	Other Art <i>See Page 1-5</i>	

## U.S. Patent Documents

Exam. Init.	Ref. Des.	Document Number	Date	Name	Class	Sub Class	Filing Date of App.
	A1	2003/0053667	03/20/03	Paragios <i>et al.</i>	382	128	05/17/02
	A2	2003/0118221	06/26/03	Deschamps <i>et al.</i>	382	128	10/22/02
	A3	2003/0197704	10/23/03	Tek <i>et al.</i>	345	474	09/04/02
	A4	2004/0019267	01/29/04	Paragios <i>et al.</i>	600	407	01/31/03
	A5	2004/0024315	02/05/04	Chalana <i>et al.</i>	600	443	07/31/03

## Foreign Patent Documents

Exam. Init.	Ref. Des.	Document Number	Date	Country	Language
	B1	EP 1227342	07/31/02	Europe	English
	B2	EP 1306803	05/02/03	Europe	French
	B3	WO 00/19904	04/13/00	WIPO	English
	B4	WO 03/041584	05/22/03	WIPO	English
	B5	WO 2004/001671	12/31/03	WIPO	English
	B6	WO 2004/079654	09/16/04	WIPO	English

## Other Art (Including Author, Title, Date Pertinent Pages, Etc.)

Exam. Init.	Ref. Des.	Citation
	C1	Antiga <i>et al.</i> , "Computational Geometry for Patient Specific Reconstruction and Meshing of Blood Vessels from MR and CT Angiography," <i>IEEE Transactions on Medical Imaging</i> , 22:674-684, 2003.
	C2	Boukerroui <i>et al.</i> , "Segmentation of ultrasound images- multiresolution 2D and 3D algorithm based on global and local statistics," <i>Pattern Recognition Letters</i> , 24:779-790, 2003.
	C3	Bovenkamp <i>et al.</i> , "Multi-Agent IVUS Image Interpretation," <i>SPIE Proceedings: Medical Imaging 2003: Image Processing</i> , 5032:619-630, 2003.

25716531.1

EXAMINER:

DATE CONSIDERED:

EXAMINER: INITIAL IF REFERENCE CONSIDERED, WHETHER OR NOT CITATION IS IN CONFORMANCE WITH MPEP609; DRAW LINE THROUGH CITATION IF NOT IN CONFORMANCE AND NOT CONSIDERED. INCLUDE COPY OF THIS FORM WITH NEXT COMMUNICATION TO APPLICANT.

Form PTO-1449 (modified)		Atty. Docket No. BRKP:022US	Serial No. 10/579,381
List of Patents and Publications for Applicant's  INFORMATION DISCLOSURE STATEMENT  (Use several sheets if necessary)		Applicant Guy Cloutier <i>et al.</i>	
		Filing Date: May 13, 2006	Group: 3737
U.S. Patent Documents <i>See Page 1</i>	Foreign Patent Documents <i>See Page 1</i>	Other Art <i>See Page 1-5</i>	

### Other Art (Including Author, Title, Date Pertinent Pages, Etc.)

Exam. Init.	Ref. Des.	Citation
	C4	Bruining <i>et al.</i> , "ECG-gated versus nongated three-dimensional intracoronary ultrasound analysis: implications for volumetric measurements," <i>Catheterization and Cardiovascular Diagnosis</i> , 43:254-260, 1998.
	C5	Brusseau <i>et al.</i> , "Fully Automatic Luminal Contour Segmentation in Intracoronary Ultrasound Imaging- A Statistical Approach," <i>IEEE Trans. Med. Imag.</i> , 23:554-566, 2004.
	C6	Cardinal <i>et al.</i> , "Intravascular Ultrasound Image Segmentation: A Fast-Marching Method," <i>Lecture Notes in Computer Science</i> , 2879:432-439, 2003
	C7	Chalana and Kim, "A Methodology for Evaluation of Boundary Detection Algorithms on Medical Images," <i>IEEE Trans. Med. Imag.</i> , 16:642-652, 1997.
	C8	Colombo <i>et al.</i> , "Intracoronary Stenting Without Anticoagulation Accomplished With Intravascular Ultrasound Guidance," <i>Circulation</i> , 91:1676-1688, 1995.
	C9	De Korte <i>et al.</i> , "Intravascular elasticity imaging using ultrasound: feasibility studies in phantoms," <i>Ultrasound Med. Biol.</i> , 23:735-746, 1997.
	C10	De Winter <i>et al.</i> , "Retrospective Image-Based Gating of Intracoronary Ultrasound Images for Improved Quantitative Analysis: The Intelligate Method," <i>Characterization and Cardiovascular Diagnosis</i> , 61:84-94, 2004.
	C11	Delignon <i>et al.</i> , "Estimation of Generalized Mixtures and Its Application in Image Segmentation," <i>IEEE Transactions on Image Processing</i> , 6:1364-1375, 1997.
	C12	Dempster <i>et al.</i> , "Maximum Likelihood from Incomplete Data via the EM Algorithm," <i>J. Roy. Stat. Soc. B</i> , 39:1-38, 1977.
	C13	Dutt and Greenleaf, "Statistics of the log-compressed echo envelope," <i>J. Acoust. Soc. Am.</i> , 99:3817-3825, 1996.
	C14	Gussenhoven <i>et al.</i> , "Arterial Wall Characteristics Determined by Intravascular Ultrasound Imaging: An in Vitro Study," <i>J. Am. Coll. Cardiol.</i> , 14:947-952, 1989.
	C15	Haas <i>et al.</i> , "Segmentation of 3D intravascular ultrasonic images based on a random field model," <i>Ultrasound Med. Biol.</i> , 26:297-306, 2000.
	C16	Hagenaars <i>et al.</i> , "Gamma radiation induces positive vascular remodeling after balloon angioplasty: a prospective, randomized intravascular ultrasound scan study," <i>Journal of Vascular Surgery</i> , 36:318-324, 2002.

25716531 1

EXAMINER:

DATE CONSIDERED:

EXAMINER: INITIAL IF REFERENCE CONSIDERED, WHETHER OR NOT CITATION IS IN CONFORMANCE WITH MPEP609; DRAW LINE THROUGH CITATION IF NOT IN CONFORMANCE AND NOT CONSIDERED. INCLUDE COPY OF THIS FORM WITH NEXT COMMUNICATION TO APPLICANT.

Form PTO-1449 (modified)		Atty. Docket No. <b>BRKP:022US</b>	Serial No. <b>10/579,381</b>
List of Patents and Publications for Applicant's		Applicant <b>Guy Cloutier et al.</b>	
INFORMATION DISCLOSURE STATEMENT		Filing Date: <b>May 13, 2006</b>	Group: <b>3737</b>
(Use several sheets if necessary)			
U.S. Patent Documents <i>See Page 1</i>	Foreign Patent Documents <i>See Page 1</i>	Other Art <i>See Page 1-5</i>	

### Other Art (Including Author, Title, Date Pertinent Pages, Etc.)

Exam. Init.	Ref. Des.	Citation
	C17	Han et al., "A Fast Minimal Path Active Contour Model," <i>IEEE Transactions on Image Processing</i> , 10:865-873, 2001.
	C18	Hastie et al., <i>The Elements of Statistical Learning: Data Mining, Inference, and Prediction</i> , Springer, New York, pp. 236-243, 2001.
	C19	Jain et al., "Deformable template models: A review," <i>Signal Processing</i> , 71:109-129, 1998.
	C20	Kallel et al., "Speckle Motion Artifact Under Tissue Rotation," <i>IEEE Trans. Ultrason., Ferroelect., Freq. Contr.</i> , 41:105-122, 1994.
	C21	Klingensmith et al., "Evaluation of Three-Dimensional Segmentation Algorithms for the Identification of Luminal and Medial-Adevential Borders in Intravascular Ultrasound Images," <i>IEEE Trans. Med. Imag.</i> , 19:996-1011, 2000.
	C22	Koning et al., "Advanced contour detection for three-dimensional intracoronary ultrasound: a validation- in vitro and in vivo," <i>Int. J. Cardiovascular Imaging</i> , 18:235-248, 2002.
	C23	Kovalski et al., "Three-dimensional automatic quantitative analysis of intravascular ultrasound images," <i>Ultrasound Med. Biol.</i> , 26:527-537, 2000.
	C24	Malladi et al., "Shape Modeling with Front Propagation: A Level Set Approach," <i>IEEE Trans. Pattern Anal. Machine Intell.</i> , 17:158-175, 1995.
	C25	Maurice et al., "Adapting the Lagrangian speckle model estimator for endovascular elastography: theory and validation with simulated radio-frequency data," <i>J. Acoust. Soc. Am.</i> , 116:1276-1286, 2004.
	C26	Mignotte and Meunier, "A multiscale optimization approach for the dynamic contour-based boundary detection issue," <i>Computerized Medical Imaging and Graphics</i> , 25:265-275, 2001.
	C27	Mintz et al., "American College of Cardiology Clinical Expert Consensus Document on Standards for Acquisition, Measurement and Reporting of Intravascular Ultrasound Studies (IVUS). A report of the American College of Cardiology Task Force on Clinical Expert Consensus Documents," <i>J. Am. Coll. Cardiol.</i> , 37:1478-1492, 2001.
	C28	Mintz et al., "Atherosclerosis in angiographically "normal" coronary artery reference segments: an intravascular ultrasound study with clinical correlations," <i>J. Am. Coll. Cardiol.</i> , 25:1479-1485, 1995.

25716531.1

EXAMINER:

DATE CONSIDERED:

EXAMINER: INITIAL IF REFERENCE CONSIDERED, WHETHER OR NOT CITATION IS IN CONFORMANCE WITH MPEP609. DRAW LINE THROUGH CITATION IF NOT IN CONFORMANCE AND NOT CONSIDERED. INCLUDE COPY OF THIS FORM WITH NEXT COMMUNICATION TO APPLICANT.

Form PTO-1449 (modified)		Atty. Docket No. <b>BRKP:022US</b>	Serial No. <b>10/579,381</b>
List of Patents and Publications for Applicant's  INFORMATION DISCLOSURE STATEMENT  (Use several sheets if necessary)		Applicant <b>Guy Cloutier et al.</b>	
		Filing Date: <b>May 13, 2006</b>	Group: <b>3737</b>
U.S. Patent Documents <i>See Page 1</i>	Foreign Patent Documents <i>See Page 1</i>	Other Art <i>See Page 1-5</i>	

### Other Art (Including Author, Title, Date Pertinent Pages, Etc.)

Exam. Init.	Ref. Des.	Citation
	C29	Mojsilovic et al., "Automatic segmentation of intravascular ultrasound images: a texture-based approach," <i>Ann. Biomed. Eng.</i> , 25:1059-1071, 1997.
	C30	Nadkarni et al., "Image-based Retrospective Cardiac Gating for Three-Dimensional Intravascular Ultrasound Imaging," <i>SPIE Proceedings: Medical Imaging: Ultrasonic Imaging and Signal Processing</i> , 4687:276-284, 2002.
	C31	Nissen and Yock, "Intravascular Ultrasound: Novel Pathophysiological Insights and Current Clinical Applications," <i>Circulation</i> , 103:604-616, 2001.
	C32	Nissen, "Application of Intravascular Ultrasound to Characterize Coronary Artery Disease and Assess the Progression or Regression of Atherosclerosis," <i>Am. J. Cardiol.</i> , 89:24B-31B, 2002.
	C33	Osher and Sethian, "Fronts Propagating with Curvature Dependent Speed: Algorithms Based on Hamilton-Jacobi Formulations," <i>J. Comput. Phys.</i> , 79:12-49, 1988.
	C34	Pieczynski, "Hidden Markov Fields and Iterative Conditional Estimation," <i>Traitement du Signal</i> , 11:141-153, 1994 (English Abstract).
	C35	Pujol et al., "Intravascular Ultrasound Images Vessel Characterization using AdaBoost," <i>Lecture Notes in Computer Science</i> , 2674:242-251, 2003
	C36	Sethian, "A fast marching level set method for monotonically advancing fronts," <i>Proceedings of the National Academy of Sciences USA</i> , 93:1591-1595, 1996.
	C37	Sethian, In: <i>Level Set Methods and Fast Marching Methods: Evolving Interfaces in Computational Geometry, Fluids Mechanics, Computer Vision and Materials Science</i> , 2 <sup>nd</sup> ed., Cambridge University Press, 1999.
	C38	Shankar, "A General Statistical Model for Ultrasonic Backscattering from Tissues," <i>IEEE Transactions on Ultrasonics, Ferroelectrics, and Freq. Control</i> , 47:727-736, 2000.
	C39	Shaw et al., "Determinants of Coronary Artery Compliance in Subjects With and Without Angiographic Coronary Artery Disease," <i>J American College of Cardiology</i> , 39:1637-1643, 2002.
	C40	Sifakis et al., "Bayesian Level Sets for Image Segmentation," <i>J. Visual Commun. Imag. Rep.</i> , 13:44-64, 2002.
	C41	Tai et al., "In vivo femoropopliteal arterial wall compliance in subjects with and without lower limb vascular disease," <i>J. Vascular Surgery</i> , 30:936-945, 1999.

25716531.1

EXAMINER:

DATE CONSIDERED:

EXAMINER, INITIAL IF REFERENCE CONSIDERED, WHETHER OR NOT CITATION IS IN CONFORMANCE WITH MPEP609; DRAW LINE THROUGH CITATION IF NOT IN CONFORMANCE AND NOT CONSIDERED. INCLUDE COPY OF THIS FORM WITH NEXT COMMUNICATION TO APPLICANT.

Form PTO-1449 (modified)		Atty. Docket No. BRKP:022US	Serial No. 10/579,381
List of Patents and Publications for Applicant's  INFORMATION DISCLOSURE STATEMENT  (Use several sheets if necessary)		Applicant Guy Cloutier <i>et al.</i>	
		Filing Date: May 13, 2006	Group: 3737
U.S. Patent Documents <i>See Page 1</i>	Foreign Patent Documents <i>See Page 1</i>	Other Art <i>See Page 1-5</i>	

### Other Art (Including Author, Title, Date Pertinent Pages, Etc.)

Exam. Init.	Ref. Des.	Citation
	C42	Takano <i>et al.</i> , "Mechanical and Structural Characteristics of Vulnerable Plaques: Analysis by Coronary Angioscopy and Intravascular Ultrasound," <i>J American College of Cardiology</i> , 38:99-104, 2001.
	C43	Von Birgelen <i>et al.</i> , "ECG-Gated Three-dimensional Intravascular Ultrasound," <i>Circulation</i> , 96:2944-2952, 1997.
	C44	Von Birgelen <i>et al.</i> , "Morphometric analysis in three-dimensional intracoronary ultrasound: an in vitro and in vivo study performed with a novel system for the contour detection of lumen and plaque," <i>Am. Heart J.</i> , 132:516-527, 1996.
	C45	Wagner <i>et al.</i> , "Statistics of Speckle in Ultrasound B-Scans," <i>IEEE Transactions on Sonics and Ultrasonics</i> , 30:156-163, 1983.
	C46	Wear <i>et al.</i> , "Statistical properties of estimates of signal-to-noise ratio and number of scatterers per resolution cell," <i>Journal of the Acoustical Society of America</i> , 102:635-641, 1997.
	C47	Weichert <i>et al.</i> , "Virtual 3D IVUS vessel model for intravascular brachytherapy planning. I. 3D segmentation, reconstruction, and visualization of coronary artery architecture and orientation," <i>Med. Phys.</i> , 30:2530-2536, 2003.
	C48	Xu <i>et al.</i> , "Image Segmentation Using Deformable Models," Handbook of Medical Imaging, Vol. 2: Medical Image Processing and Analysis, Sonka and Fitzpatrick (eds.), SPIE Press, 2000.
	C49	Zhang <i>et al.</i> , "Tissue Characterization in Intravascular Ultrasound Images," <i>IEEE Trans. Med. Imag.</i> , 17:889-899, 1998.
	C50	Zhong <i>et al.</i> , "Object Tracking Using Deformable Templates," Sixth International Conference on Computer Vision, pp. 410-445, 1998.
	C51	Zhu <i>et al.</i> , "Retrieval of Cardiac Phase from IVUS Sequences," <i>SPIE Proceedings: Medical Imaging: Ultrasonic Imaging and Signal Processing</i> , 5035:135-146, 2003.

25716531 I

EXAMINER:

DATE CONSIDERED:

EXAMINER: INITIAL IF REFERENCE CONSIDERED, WHETHER OR NOT CITATION IS IN CONFORMANCE WITH MPEP609. DRAW LINE THROUGH CITATION IF NOT IN CONFORMANCE AND NOT CONSIDERED. INCLUDE COPY OF THIS FORM WITH NEXT COMMUNICATION TO APPLICANT.